

REMARKS

Claims 4, 10, and 17 have been amended to be in independent form, but the amendment of claims 4, 10, 17, and 21 has not otherwise changed claims 4, 10, and 17, respectively.

The Examiner rejected claims 1-5, and 8-11 under 35 U.S.C. §102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over US Pat. 5811211 to Tanaka et al.

The Examiner rejected claims 1, 8, 13, and 20-22 under 35 U.S.C. §102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over US Pat. 4,937,618 to Ayata et al.

The Examiner rejected claims 6, 7, and 12-22 under 35 U.S.C. §103(a) as allegedly being unpatentable over Tanaka in view of US Pat. 5,376,482 to Hwang et al.

Applicants respectfully traverse the §102 and §103 rejections with the following arguments.

35 U.S.C. §102/§103: Tanaka

The Examiner rejected claims 1-5, and 8-11 under 35 U.S.C. §102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over US Pat. 5811211 to Tanaka et al.

Since claims 1, 3, and 9 have been canceled, the rejection of claims 1, 3, and 9 as allegedly unpatentable over Tanaka under 35 U.S.C. §102(b) or 35 U.S.C. §103(a) is moot.

Applicants respectfully contend that claims 2 and 8 are not unpatentable over Tanaka under 35 U.S.C. §102(b) or 35 U.S.C. §103(a), because Tanaka does not teach or suggest each and every feature of claims 2 and 8.

As a first example why Tanaka does not teach or suggest each and every feature of claims 2 and 8, Tanaka does not teach or suggest the feature: "printing a design only within a peripheral portion of the wafer such that no portion of the printed design is within the active portion of the wafer" (claim 2) and "wherein the lens is adapted to focus the remaining portion of the light onto the wafer such that an image of a portion of the pattern is printed as a design only within a peripheral portion of the wafer such that no portion of the printed design is within the active portion of the wafer" (claim 8). Applicants respectfully contend that Tanaka does not disclose anywhere that the peripheral exposure regions EE1, EE2, EE3, and EE4 shown in FIG. 7 of Tanaka lie outside of the active portion of the wafer.

As a second example why Tanaka does not teach or suggest each and every feature of claims 2 and 8, Tanaka does not teach or suggest the feature: "determining whether the reticle blind is correctly placed within the exposure apparatus, said determining being based on where

the design is printed within the peripheral portion of the wafer" (claim 2); and "means for determining whether the reticle blind is correctly placed within the exposure apparatus" (claim 8). In contrast, Tanaka, col. 4, lines 7-12 discloses determining a "precision of the width of a wafer margin exposed by a peripheral edge exposure apparatus".

Based on the preceding arguments, Applicants respectfully maintain that claims 2 and 8 are not unpatentable over Tanaka under 35 U.S.C. §102(b) or 35 U.S.C. §103(a), and that claims 2 and 8 are in condition for allowance. Since claims 3 and 9 respectively depend from claims 2 and 8, Applicants contend that claims 3 and 9 are likewise in condition for allowance.

Applicants respectfully contend that claim 4 and 10 are not unpatentable over Tanaka under 35 U.S.C. §102(b) or 35 U.S.C. §103(a), because Tanaka does not teach or suggest each and every feature of claims 4 and 10.

As a first example why Tanaka does not teach or suggest each and every feature of claims 4 and 10, Tanaka does not teach or suggest the feature: "printing a design only within a peripheral portion of the wafer such that no portion of the printed design is within the active portion of the wafer" (claim 4) and "wherein the lens is adapted to focus the remaining portion of the light onto the wafer such that an image of a portion of the pattern is printed as a design only within a peripheral portion of the wafer such that no portion of the printed design is within the active portion of the wafer" (claim 10).

Applicants respectfully contend that Tanaka does not disclose anywhere that the peripheral exposure regions EE1, EE2, EE3, and EE4 shown in FIG. 7 of Tanaka lie outside of the active portion of the wafer.

As a second example why Tanaka does not teach or suggest each and every feature of claims 4 and 10, Tanaka does not teach or suggest the feature: "wherein the spacing is about equal to a design tolerance, wherein the design tolerance is a sum of a first design tolerance and a second design tolerance, wherein the first design tolerance is based on how accurately the reticle blind can be positioned within the exposure apparatus, and wherein the second design tolerance is based on how sharply an edge of the reticle blind can be focused on the wafer by a lens of the exposure apparatus".

Applicants respectfully contend that Tanaka does not disclose what the spacing is between adjacent pattern elements, and Tanaka most certainly not disclose that said spacing is a sum of said first and second design tolerances.

Based on the preceding arguments, Applicants respectfully maintain that claims 4 and 10 are not unpatentable over Tanaka under 35 U.S.C. §102(b) or 35 U.S.C. §103(a), and that claims 4 and 10 are in condition for allowance. Since claims 5 and 11 respectively depend from claims 4 and 10, Applicants contend that claims 5 and 11 are likewise in condition for allowance.

In addition with respect to new claims 23-26, Applicants contend that Tanaka does not teach or suggest the feature: "wherein the printed design is visible to a naked eye unaided".

35 U.S.C. §102/§103: Ayata

The Examiner rejected claims 1, 8, 13, and 20-22 under 35 U.S.C. §102(b) as allegedly being anticipated by or, in the alternative, under 35 U.S.C. §103(a) as obvious over US Pat. 4,937,618 to Ayata et al.

Since claims 1, 13, 20, and 22 has been canceled, the rejection of claims 1, 13, 20, and 22 as allegedly unpatentable over Ayata under 35 U.S.C. §102(b) or 35 U.S.C. §103(a) is moot.

Applicants respectfully contend that claim 8 is not unpatentable over Ayata under 35 U.S.C. §102(b) or 35 U.S.C. §103(a), because Ayata does not teach or suggest each and every feature of claim 8.

As a first example why Ayata does not teach or suggest each and every feature of claim 8, Ayata does not teach or suggest the feature: "wherein the lens is adapted to focus the remaining portion of the light onto the wafer such that an image of a portion of the pattern is printed as a design only within a peripheral portion of the wafer such that no portion of the printed design is within the active portion of the wafer".

The Examiner argues that "Ayata teaches a printing method and printed wafer (fig. 13) with a printed design (WPL1, WPR1) that is only within the peripheral portion of the wafer and not in the active areas 1-45".

In response, Applicants respectfully contend that Ayata does not disclose that areas 1-45 in FIG. 13 of Ayata are active areas. Ayata defines a "shot area" as an "exposure area" (see Ayata, col. 16, line 29) and Ayata does not disclose that a shot area is an active area.

Furthermore, as an alternative argument assuming that even if areas 1-45 in FIG. 13 of

Ayata are active areas, Applicants' specification on page 5, lines 2-4 refers to FIG. 2 for illustration in defining the peripheral portion of the wafer as follows: "FIG. 2 shows that wafer 36 comprises an active portion 40 and a peripheral portion 38. The peripheral portion 38 of the wafer 36 is between the **outer boundary 37** of the active portion 40 and the outer boundary 39 of the peripheral portion 38 " (emphasis added). In FIG. 13 of Ayata, the outer boundary of the alleged active areas 1-45 (**corresponding to outer boundary 37 in FIG. 2 of Applicants' specification**) may be reasonably generated by drawing straight lines between the outermost portions of areas 40, 41, 42, etc. For example, a straight line may be drawn between the outermost corner points of areas 40 and 41, and likewise between the outermost corner points of areas 34 and 45. However, alignment marks WPL1 and WPR1 in FIG. 13 of Ayata are not located in their entirety in the peripheral portion of the wafer outside of said generated outer boundary of the alleged active areas 1-45 (i.e., at least a portion of alignment marks WPL1 and WPR1 lie interior to the generated outer boundary of the alleged active areas 1-45 and therefore within the active portion of the wafer). Accordingly, FIG. 13 of Ayata does not disclose said feature of claim 8 under the preceding alternative argument.

As a second example why Ayata does not teach or suggest each and every feature of claim 8, Ayata does not teach or suggest the feature: "means for determining whether the reticle blind is correctly placed within the exposure apparatus".

Based on the preceding argument, Applicants respectfully maintain that claim 8 is not unpatentable over Ayata under 35 U.S.C. §102(b) or 35 U.S.C. §103(a), and that claim 8 is in condition for allowance.

Applicants respectfully contend that claim 21 is not unpatentable over Ayata under 35 U.S.C. §102(b) or 35 U.S.C. §103(a), because Ayata does not teach or suggest each and every feature of claim 21.

As a first example why Ayata does not teach or suggest each and every feature of claim 21, Ayata does not teach or suggest the feature: "a design printed only within a peripheral portion of the wafer such that no portion of the printed design is within the active portion of the wafer, wherein the peripheral portion of the wafer is between an outer boundary of the active portion of the wafer and an outer boundary of the wafer".

The Examiner argues that "Ayata teaches a printing method and printed wafer (fig. 13) with a printed design (WPI.1, WPR1) that is only within the peripheral portion of the wafer and not in the active areas 1-45".

In response, Applicants respectfully contend that Ayata does not disclose that areas 1-45 in FIG. 13 of Ayata are active areas. Ayata defines a "shot area" as an "exposure area" (see Ayata, col. 16, line 29) and Ayata does not disclose that a shot area is an active area.

Furthermore, as an alternative argument assuming that even if areas 1-45 in FIG. 13 of Ayata are active areas, Applicants' specification on page 5, lines 2-4 refers to FIG. 2 for illustration in defining the peripheral portion of the wafer as follows: "FIG. 2 shows that wafer 36 comprises an active portion 40 and a peripheral portion 38. The peripheral portion 38 of the wafer 36 is between the **outer boundary 37** of the active portion 40 and the outer boundary 39 of the peripheral portion 38 " (emphasis added). In FIG. 13 of Ayata, the outer boundary of the alleged active areas 1-45 (**corresponding to outer boundary 37 in FIG. 2 of Applicants' specification**) may be reasonably generated by drawing straight lines between the outermost

portions of areas 40, 41, 42, etc. For example, a straight line may be drawn between the outermost corner points of areas 40 and 41, and likewise between the outermost corner points of areas 34 and 45. However, alignment marks WPL1 and WPR1 in FIG. 13 of Ayata are not located in their entirety in the peripheral portion of the wafer outside of said generated outer boundary of the alleged active areas 1-45 (i.e., at least a portion of alignment marks WPL1 and WPR1 lie interior to the generated outer boundary of the alleged active areas 1-45 and therefore within the active portion of the wafer). Accordingly, FIG. 13 of Ayata does not disclose said feature of claim 21 under the preceding alternative argument.

As a second example why Ayata does not teach or suggest each and every feature of claim 21, Ayata does not teach or suggest the feature: "wherein the printed design is visible to a naked eye unaided".

The Examiner argues: "Ayata teaches ... [t]he marks (fig. 15) are for coarse alignment and thus visible to the unaided eye, although machine vision (TV) may be used for alignment."

In response, Applicants respectfully contend that the description of FIG. 15 in Ayata, col. 17, lines 4-40 discloses that the alignment marks on the wafer may be viewed through use of a TV monitor, but most certainly does not disclose that the alignment marks on the wafer may be viewed by a naked eye unaided as required by claim 21.

Based on the preceding argument, Applicants respectfully maintain that claim 21 is not unpatentable over Ayata under 35 U.S.C. §102(b) or 35 U.S.C. §103(a), and that claim 21 is in condition for allowance.

35 U.S.C. §103

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The Examiner rejected claims 6, 7, and 12-22 under 35 U.S.C. §103(a) as allegedly being unpatentable over Tanaka in view of US Pat. 5,376,482 to Hwang et al.

Since claims 6, 13, 20, and 22 has been canceled, the rejection of claims 6, 13, 20, and 22 as allegedly unpatentable over Tanaka in view of Hwang under 35 U.S.C. §103(a) is moot.

Since claim 7 depends from claim 2, which Applicants have argued *supra* to not be unpatentable over Tanaka under 35 U.S.C. §102(b) or 35 U.S.C. §103(a), Applicants maintain that claim 2 is likewise not unpatentable over Tanaka in view of Hwang under 35 U.S.C. §103(a).

Since claim 12 depends from claim 8, which Applicants have argued *supra* to not be unpatentable over Tanaka under 35 U.S.C. §102(b) or 35 U.S.C. §103(a), Applicants maintain that claim 12 is likewise not unpatentable over Tanaka in view of Hwang under 35 U.S.C. §103(a).

Applicants respectfully contend that claim 17 is not unpatentable over Tanaka in view of Hwang under 35 U.S.C. §103(a), because Tanaka in view of Hwang does not teach or suggest each and every feature of claim 17. For example, Tanaka in view of Hwang does not teach or suggest the feature: "wherein the spacing is about equal to a design tolerance, wherein the design tolerance is a sum of a first design tolerance and a second design tolerance, wherein the first design tolerance is based on how accurately a reticle blind of the exposure apparatus can be positioned within the exposure apparatus, and wherein the second design tolerance is based on

how sharply an edge of the reticle blind can be focused on the wafer by a lens of the exposure apparatus”.

Tanaka does not disclose what the spacing is between adjacent pattern elements, and Tanaka most certainly not disclose that said spacing is a sum of said first and second design tolerances.

Based on the preceding arguments, Applicants respectfully maintain that claim 17 is not unpatentable over Tanaka in view of Hwang under 35 U.S.C. §103(a), and that claim 17 is in condition for allowance. Since claims 18-19 depend from claim 17, Applicants contend that claims 18-19 are likewise in condition for allowance. In addition with respect to new claim 27, Applicants contend that Tanaka in view of Hwang does not teach or suggest the feature: “wherein the design is visible to a naked eye unaided”.

Applicants respectfully contend that claim 21 is not unpatentable over Tanaka in view of Hwang under 35 U.S.C. §103(a), because Tanaka in view of Hwang does not teach or suggest each and every feature of claim 21.

As a first example of why Hwang does not teach or suggest each and every feature of claim 21, Tanaka in view of Hwang does not teach or suggest the feature: “a design printed only within a peripheral portion of the wafer such that no portion of the printed design is within the active portion of the wafer, wherein the peripheral portion of the wafer is between an outer boundary of the active portion of the wafer and an outer boundary of the wafer”. Applicants respectfully contend that Tanaka does not disclose anywhere that the peripheral exposure regions EE1, EE2, EE3, and EE4 shown in FIG. 7 of Tanaka lie outside of the active portion of the

wafer.

As a second example of why Hwang does not teach or suggest each and every feature of claim 21, Tanaka in view of Hwang does not teach or suggest the feature: "wherein the design is visible to a naked eye unaided".

Based on the preceding arguments, Applicants respectfully maintain that claim 21 is not unpatentable over Tanaka in view of Hwang under 35 U.S.C. §103(a), and that claim 21 is in condition for allowance. Since claims 14-16 depend from claim 21, Applicants contend that claims 14-16 are likewise in condition for allowance.

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CONCLUSION

Based on the preceding arguments, Applicants respectfully believe that all pending claims and the entire application meet the acceptance criteria for allowance and therefore request favorable action. If the Examiner believes that anything further would be helpful to place the application in better condition for allowance, Applicants invites the Examiner to contact Applicants' representative at the telephone number listed below. The Director is hereby authorized to charge and/or credit Deposit Account No. 09-0456.

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